

### **Abstract**

A centrifugal compressor unit includes a driving means for rotatably driving a rotor, and at least one compressor including a statoric body and an arrangement of blade wheels  
5 mounted on a shaft which is roatably driven by the rotor in the statoric body. The group formed by the motor and/or each compressor being mounted in a common housing is sealed from the gas used by the compressor. The compressor unit also includes an arrangement of active bearings for axially and radially guiding the rotor and the driven shaft, and a means for cooling the driving means and the guiding bearings by withdrawing the gas used by the  
10 compressor at the outlet of a first compression stage. The cooling means includes a set of internal conduits for supplying the driving means and the bearings with cooling gas. The cooling gas flow in the motor and the cooling gas flow in the bearing is separated and then converge upstream of the first compression stage.

### **SUBSTITUTE SHEET**